

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,977,005 B2
APPLICATION NO. : 10/620480
DATED : December 20, 2005
INVENTOR(S) : Erdmann et al.

Page 1 of 3

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Drawings:

The title page should be deleted and substitute therefor the attached title page

Column 10.

Line 26, after "coat", insert --the--;

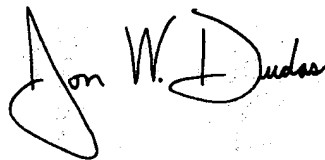
Line 61, after "material", replace "repellant" by --repellent--;

Column 12.

Line 40, after "feces", replace "and" by --or--.

Signed and Sealed this

Tenth Day of October, 2006

A handwritten signature in black ink, appearing to read "Jon W. Dudas". The signature is stylized with a large, looped initial "J" and a distinct "D".

JON W. DUDAS
Director of the United States Patent and Trademark Office

(12) **United States Patent**
Erdmann et al.

(10) Patent No.: **US 6,977,005 B2**
 (45) Date of Patent: **Dec. 20, 2005**

(54) **WATERLESS VACUUM TOILET SYSTEM
 FOR AIRCRAFT**

(75) Inventors: **Wolfgang Erdmann, Buxtehude (DE);
 Torsten Glenke, Pinneberg (DE);
 Hans-Juergen Heinrich, Hamburg
 (DE)**

(73) Assignee: **Alrbus Deutschland GmbH, Hamburg
 (DE)**

(*) Notice: Subject to any disclaimer, the term of this
 patent is extended or adjusted under 35
 U.S.C. 154(b) by 164 days.

(21) Appl. No.: **10/620,480**

(22) Filed: **Jul. 15, 2003**

(65) **Prior Publication Data**
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Related U.S. Application Data

(63) Continuation-in-part of application No. 10/017,491,
 filed on Oct. 22, 2001, now abandoned, which is a
 continuation-in-part of application No. 09/603,854,
 filed on Jun. 26, 2000, now abandoned.

(30) Foreign Application Priority Data

Jun. 24, 1999 (DE) 199 28 894

(51) Int. Cl.⁷ **B01D 35/16; E03D 5/00**

(52) U.S. Cl. **55/431; 4/316; 4/321; 4/434;
 4/472**

(58) Field of Search **4/316, 321, 431-434,
 4/449, 472, 475, 477, DIG. 10; 55/431**

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Primary Examiner—Richard L. Chiesa

(74) Attorney, Agent, or Firm—W. F. Fasse; W. G. Fasse

(57)

ABSTRACT

A waterless vacuum toilet system for an aircraft includes a toilet bowl connected via a suction valve and a waste collection pipe to a waste collection tank. Waste-contacting surfaces that come into contact with urine and fecal waste are coated with an adhesion-inhibiting or adhesion-reducing nanocoating. The adhesion of waste is significantly reduced, and the need for flushing water is completely eliminated. Instead, an air jet arrangement preferably including an annular ring nozzle or annular air gap directs an airflow into the toilet bowl and along the nanocoated waste-contacting surface thereof, to "air flush" the waste material from these surfaces. The flushing airflow may be induced through the air jet arrangement into the toilet bowl by the suction applied through the suction valve. The "air flushed" toilet system substantially reduces the total system weight and eliminates the need for toilet flushing water to be carried in the aircraft.

17 Claims, 3 Drawing Sheets

